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CENTRAL INTELLIGENCE AGENCY

**INFORMATION REPORT**

COUNTRY Hungary

SUBJECT The Borsod Combine

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1. The Communist government of Hungary began to establish its second largest industrial project in 1951. This is the Borsod combine. After the "Stalin" steelworks (Dunapentele) this is the largest plant in the country. The combine is an integrated industry because it includes coal production, power plant and some end products.
2. The combine comprises:
  - a) A central coal screening plant.
  - b) A coking plant
  - c) Power station
  - d) Nitrogen plant
3. The plant is located on the territories of three towns: Sajószentpéter, Kézincz and Berente. The additional workers' quarters are located at Mucsony and Edöleny. This will be an entirely new town and there will be housed, in addition to the personnel of the combine, the workers of the mines located in the neighborhood.
4. The location of the plant is very advantageous since it is situated about 15 kilometers north of Miskolc, on the shore of the River Sajó. Miskolc is one of the most important cities in the country. It has a good railroad connection with the capital, Budapest. In the current five-year plan this railroad will be electrified and then there will be four tracks between Miskolc and Budapest. Miskolc has the second largest steelworks of the country (Diósgyőr) and well-equipped machine factories and shops.

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SECRET

2

5. The River Sajó has plenty of water the entire year, therefore there will be no trouble in obtaining cooling water for the power and the nitrogen plants.
6. This coal district is the most promising coal territory of the country. The district's coal deposits are estimated at above one billion metric tons (actual and probable); in addition to that there are in the neighborhood very extensive lignite deposits. These are not included in the above mentioned estimates.
7. The district covers a circle-like area of 40 kilometers diameter. The bulk of the coal is covered by approximately 50 to 60 meters of overlying sediments. A very simple underground mining method is used (room and pillar). The average thickness of the coal seams is about 2 to 2.2 meters, hence back-filling is not necessary. The chosen location of the central screening plant is at the centre of the district. The coal from the individual mines will be hauled by cableways or narrow-gauge railroads.
8. The entire plant will be built in two steps. Allegedly the first part of the combine will come into operation in 1955, and the second and final part, in 1958.

The Central Screening Plant

9. The daily output of the screening plant will be 20 thousand metric tons in the beginning; later it will be 30 thousand metric tons.
10. Coal is sorted here by mechanical methods to four sorts. There is no washing or other processing of the coal. All the machinery is electric driven screens and vibrators. The sorts are:
 

a) Lump coal	above 80 millimeters
b) Broken	between 80 and 40 millimeters
c) Chestnut	between 40 and 15 millimeters
d) Buckwheat	between 15 and 2 millimeters
11. All coal below two millimeters is used by the power plant.
12. The designs are good and the operations are mechanized. In my opinion the most serious disadvantage of the plant, as compared with the US, is the exceedingly small size of the mining cars and the railcars. The standard size of the mining cars in Hungary is 650 kilograms (roughly 0.75 cubic meters), and the capacity of the railcars is between 15 and 20 metric tons. Hence they need a comparatively high labor force.

The Coking Plant

13. At first the coking plant will have a daily output of three thousand metric tons. Later it can be extended to six thousand and then to nine thousand tons.
14. The experts of the government promised that they will produce metallurgical coke. This was of great importance to the country, especially to its steel industry. At the present time 90% of the metallurgical coke is imported and the demands will increase if the new steel plant comes into operation. [redacted] this will be a failure as the Hungarian coals are not suited for the production of metallurgical coke. This plant will deliver coke just for household purposes. The government seemed to be aware of this condition, because in 1951 it made an agreement with the Czech government. In the terms of this agreement the total coal demand of the new Hungarian steel plant will be imported from Czechoslovakia.

SECRET

25X1

25X1

SECRET

3

15. The coking plant will use the chamber process and as a by-product they will utilize the tar. The producer gas, which will be produced, will be transported in part to the industrial glass plant at Sajoszentpeter and in part to the city Miskolc by a pipeline. The household coke will have a good market as there is a high demand in Hungary for this type of coke.  
Power Plant
16. This power plant will be the largest Hungarian power plant to date. At first its output will be 150 thousand kw. Later it will be expanded to produce 200 thousand kw.
17. Twelve boilers will be installed, each with an output of 75 metric tons per hour. The steam pressure will be about 100 atmospheres (about 1470 psia). The steam will be overheated at 500 degrees Celsius (centigrade) (930 F). The boilers are of the vertical tube type and use pulverized fuel. For the pulverizing of the fuel each boiler is equipped with individual mills.
18. The turbine house contains six steam turbines, each with 25 thousand kw output. On the turbines there are four bleedings and intermediate superheating. The data on turbogenerators are:
 

Output	25,000 kw
Cosphi (power factor)	0.75
Voltage	10,000 volts
19. The generators are air-cooled with heat recuperation. Hydrogen cooling is not used in Hungary.
20. The outdoor transformer station has a voltage of 110 thousand volts, but it will be possible to switch over to 220 thousand volts later.
21. The transformer station is connected with the national grid by two transmission lines. Some of the generated power will be exported from here to the eastern part of Slovakia, Czechoslovakia.
22. The turbines use as cooling water the water of the River Sajó, but they will have also cooling towers for emergency purposes (very high summer temperatures).
23. The power plant will use the small sized coal of the screening plant. This is very advantageous. The coal which will sell on the market will all be over two millimeters in size.
24. The heating value of the Borsod coal ranges from 3000 to 3600 calories. The ash content of the coal is between 12 and 18%. The grinding of the coal will not cause any difficulties.
25. In general the turbines and the turbogenerators will be manufactured by the Hungarian heavy industry. The boilers will be made by the East German industry. Although this country has a factory capable of manufacturing tubes and especially drums for high pressure there will be difficulties, which will delay the beginning of the operation of the power plant.
26. The part of the Hungarian national grid connecting Budapest with Miskolc is already in operation and the distance between Miskolc and the combine is only 15 kilometers. This section will connect Budapest, Ond, (second largest steelworks in Hungary) and East Slovakia. Later it will be connected with the newest power plant (Power plant "Tisza"). This plant will be built by the Czech industry lock, stock and barrel and allegedly will come into operation in late 1957.

SECRET

SECRET

4

27. In general this Borsod area, including Ozd and Miskolc, will be one of the most important Hungarian industrial districts.
28. The nitrogen plant needs about 60 metric tons of steam per hour. This steam will be reduced at a pressure 30 atmospheres (450 psia) by back-pressure turbines. A pipeline will transport the steam to the nitrogen plant, which is located about one and one-half kilometers from the power plant.
- The Nitrogen Plant
29. Hungary has had a nitrogen plant at Petfurdo since about 1928. This plant has a capacity of 159 metric tons nitrogen ( $N_2$ ) per day.
30. The new nitrogen plant of the combine will use the same manufacturing processes as the old one. The capacity will be 350 metric tons of nitrogen per day. The plant will produce several ammonium compounds. Allegedly they will produce artificial fertilizer, but the end product will be, as at the old plant, ammonium nitrate. This is the most important base for military explosive manufacturing.
31. In the neighbourhood at Sajóbáony, the largest Hungarian military explosive and ammunition plant is being erected. The preparatory work was begun in 1951 on a big scale. Sajóbáony is located between the Borsod combine and Miskolc and it is a closely guarded and restricted area.
32. The new plant will have enormous difficulties with the acidless steels which will be manufactured in part at the Poldi Works in Czechoslovakia. However, most of these acidless steels can be purchased only in the Western market. The plant covers an area about one kilometer long and 400 meters wide and there are possibilities for further expansion.
33. This plant has the old personnel of the Pet plant and they make all the designs. Among them the most outstanding engineer is Lelie Sziget. He worked on the designs of the Pet plant and also, between the two World Wars, on the designs of a plant for Egypt. (In 1948 he was arrested in connection with the Nitrochemia trial.)
34. The plant has no special raw material demands. Steam and coke are delivered by the connected plants.
35. The location is very advantageous if fertilizer is produced. Borsod will provide the northern part of the country with fertilizer and Pet will supply the southern part of the country.

General Remarks

36. If, in spite of the difficulties connected with construction materials, this combine can be completed, it will be a sound project, because all members of the combine use domestic raw materials exclusively. (The Stalin steel works at Dunapentele use imported raw materials exclusively, for example, Krivoi Rog iron ore and Czech metallurgical coke.)
37. In addition to the experimental pioneer plant for the Hungarian metallurgical coke, experiments with the production of jet fuel will take place.
38. At the present time the highway cuts the combine in half, but in the future this will be eliminated. A new road will be built connecting Miskolc with Vadna and the combine will be a restricted area. Between Sajószentpéter and Kasinbárcika a six-track railroad will be built.
39. In addition to the combine, there will be built a large repair shop with about 1500 employees. This shop will make all the necessary repairs,

SECRET

SECRET

5

not only for the combine, but for all the mines and cableways which are connected with the combine.

40. As mentioned above, there will be built at Mucsony a miner's town for about 20 thousand inhabitants. All labor, including the miners, will be housed here. The standard type of house is a three-story building with 12 flats. The housing will be free, as it is considered to be part of the wages. There will be a steam pipeline from the power plant for heating purposes. Schools and department stores and restaurants are all to be government owned. One branch of the Technical University at Miskolc will be located here. These are all tremendous investments for Hungary and, in my opinion, there will be serious difficulties with labor and raw materials.
41. This is the first big-scale effort to transplant the heavy industry from Transdanubia (Western part of the country) to the northeastern region, in other words, from the western Austrian boundary to the Czech, and Soviet boundary. There is a general trend in Hungary now to move the bulk of the industry to the regions east of the River Danube.

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LIBRARY SUBJECT AND AREA CODES  
2-02-0615 9/54

740.091	37M
783.36	37M
623.37	37M
1-12/735.1	37M
2-12/735.1	37M
4-10/743.335	37M
741.319	37M
4-10/743.334	37M
11-12/740.091	37M
11-12/735.2	37M
6-12/735.2	37M
10-5/735.241	37M
10-5/735.242	37M
11-12/735.921	37M
1-6/735.921	37M
10-12/741.18	4M/C (HM)
6-12/741.18	37M (HM)
1-6/741.111	37M
2-5/741.711	37M
2-5/741.712	37M
11-12/710.2	37M
1-6/710.2	37M
668.04	37M
735.95	37M
735.95	27M
735.932	37M
6-12/733.81	37M (ZM)
10-12/733.81	27M (HM)
754.22	37M
755.52	37M
7-11/735.939	27M (HM)
7-12/735.939	37M (ZM)
614.53	37M
11-12/741.01	37M
631.43	37M
4-11/741.31	37M
831.3	37M
740.014	37M
3-12/740.02	37M
832	37M
752.2	37M
748.11	37M

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